NOISE AND VIBRATION RATING METHOD

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For this screening study, an impact metric (IM) and impact rating (IR) have been defined as follows:

Impact Metric (IM) = R + 0.3 MU +100 H + 250 S,

Where:

R = number of people impacted per mile in areas with residential land use (per the Federal Railroad Administration's [FRA's] "Severe" and "Impact" categories),

MU = number of people potentially impacted per mile in mixed commercial/residential land use,

H = number of hospitals per mile, and

S = number of schools per mile.

The calculations are based on the number of people estimated to be within the screening distance in a segment, divided by the number of route miles associated with that segment. Each term in the IM equation is given a weighting based on the estimated number of people associated with that sensitive site. For example, the 0.3 factor accounts for land usage other than residential and is appropriate because the population density is based on census tracts and covers a wider area than just the mixed land use. The 100 and the 250 factors are an estimated average number of people affected in each type of facility. There may be more people in each facility, but only 1 to 3 sides of the building(s) would be exposed to noise.

The numbers obtained from the IM equation are used to determine a rating for each segment based on the following noise rating scheme (IR):

High (H)   =   IM > 200;

Medium (M) =   80 < IM <200;

Low (L)   =   IM < 80.

Similarly, the same method is used to develop a vibration rating scheme (IR):

High (H)   =   IM >100;

Medium (M) =   40 < IM < 100;

Low (L)   =   IM < 40.

Implications of the rating scheme for noise as defined in this manner are that an IR of low (L) with IM less than 80 corresponds to a residential impact of four people per house and 20 houses per mile (520 feet between houses for development on both sides of the alignment), and no institutional impacts. Because of their higher occupancy, institutional impacts add substantially to the impact rating.

CALIFORNIA HIGH SPEED RAIL AUTHORITY

U.S. Department of Transportation **Federal Railroad Administration**